

Abstract

The present invention provides a method for shifting the instant of commutation for a sensorless and brushless direct-current motor (1), whose stator windings are fed by a multi-phase converter connection. The converter connection includes an output stage control (2), a commutation logic (3), a phase selector (4), and phase discriminator (5). A commutation detection (6) is supplied at one input (46) with the instantaneous value of the voltage induced in a phase, the instantaneous value being determined by the phase selector, and at a second input (47), with a reference voltage (U_{ref}) for comparison. The reference voltage (U_{ref}) can be changed by a commutation shift (7) in correspondence with a specific characteristic curve (71). A manipulated variable (U_m) is supplied by a manipulated-variable calculation (8) to the commutation shift (7) as a function of the setpoint speed ($N_{setpoint}$) of the motor. The commutation shift takes place in an advantageous manner in a parabola shape. As a result of the setpoint value-dependent commutation shift, a high torque is provided also in the case of high rotational speeds and a heavy load, and the torque ripple is kept to a minimum.

(Figure 1 for publication).